

**ADVANCED STEEL STRUCTURE****Module I:**

Properties of steel: mechanical properties, hysteresis, ductility; Hot-Rolled Sections: compactness and non-compactness, slenderness, residual stresses; Design of steel structures:

**Module II:**

Inelastic bending – curvature, plastic moments, design criteria - stability , strength, drift; Stability criteria: stability of beams - local buckling of compression flange & web, lateral-torsional buckling,

**Module III:**

Stability of columns - slenderness ratio of columns, local buckling of flanges and web, bracing of column about weak axis, method of design - allowable stress design, plastic design, load and resistance factor design; Strength Criteria: beams – flexure, shear, torsion, columns - moment magnification factor, effective length, P-M interaction, bi-axial bending, joint panel zones; Drift criteria: P- $\Delta$  effect,

**Module IV:**

Deformation-based design; Connections: types – welded, bolted, location - beam-column, column-foundation, splices.